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But this solitude and this peace are exposed to frequent invasions. If an eclipse is announced, the ladies of Petersburg form a party to go to Pulkowa; they either belong to the Court, or have taken the precaution to have some dignitary in their party; and consequently the Imperial Observatory could not refuse to satisfy their caprices. The troïkas deposit in the temple of science the noisy visitors, who take possession of the telescopes, and demand for their particular use that corner of the heavens where something important is about to happen. They have all these mysteries explained to them; they ferret about in albums of lunar photographs, and their curiosity is excited by the marvels that the old sorcerers tell them. The evening ends with supper of ham and sauerkraut prepared by Madame la DOYENNE, and in listening to one of the young German women play on the piano a sonata of SCHUMANN or WEBER. The joyous band then starts back, enchanted with the contrast between its habits of luxury and the austere simplicity of which it has just taken a glimpse."—*Harpers' Magazine*, Volume 78 (1889), page 851.

#### THE LUNAR ECLIPSE OF SEPTEMBER 3, 1895.

The observations of this eclipse made by me were almost entirely photographic. The instrument used was a twelve-inch silver on glass reflecting telescope of about forty-five inches focus, carried by the equatorial mounting made for the eighteen-inch reflector already described in a former number of these *Publications*, but recently altered somewhat to overcome, in a measure, the disturbing effects of the wind; the wooden tube has been replaced by three trussed iron pipes, which carry the large mirror at the lower end, and the secondary mirror near the upper end of the now skeleton tube.

As these photographs are the first that have ever been made with the twelve-inch mirror, the results are to be considered as of an experimental character. In all, some twenty-five negatives of the partial and total phases were obtained. CARBUTT'S lantern-slide slow plates ( $3\frac{1}{4} \times 4\frac{1}{4}$ ) were used for the partial phase. All these negatives show that the exposure times (in the neighborhood of 4") were much too long. Probably 0".5 to 1".0 would have been about right.

For the total phase, SEED plates No. 27 were used. From data given by the WILLARD lens at previous eclipses, an expos-

ure of from 4<sup>m</sup> to 8<sup>m</sup> was deemed necessary. I gave exposures varying from 1<sup>m</sup> 30<sup>s</sup> to 12<sup>m</sup>, but even the shortest-timed negative shows that the plate was over-exposed. For the longer exposures the drift of the image in Declination caused easily visible distortions of the outline in Declination, as I had arranged no means of guiding for the twelve-inch.

Although the clock was regulated to the lunar rate of Right Ascension, thereby causing a drift of the star images, nevertheless more than one hundred star-trails can be counted within one degree of the Moon's outline.

The refraction effects of our atmosphere, and the unequal reflecting powers of lunar areas are strongly shown in some of the photographs of the crescent phase. Aside from the unequal distribution of the light during the total phase, the lunar surface features, illumined only by light passing through our atmosphere, appear much the same as those obtained of the full Moon.

The plates were placed in the principal focus; the diameter of the Moon's image being about 0.40 inches.

J. M. SCHAEBERLE.

LICK OBSERVATORY,  
September 10, 1895.

#### TOTAL ECLIPSE OF THE MOON, SEPTEMBER 3, 1895.

This was a particularly bright eclipse, the disc of the Moon during totality being in general a bright red. There was a cinnamon-brown color in parts of the disc before contact with the shadow, due to emersion in the penumbra. The shadow itself appeared of tints ranging from steel-gray to olive-green, possibly the effect of contrast.

The rim of the Moon's disc could always be seen through the shadow, by the use of a strong pair of field-glasses; with which the following phases were observed:

Contact with shadow, 8<sup>h</sup> 0<sup>m</sup> 20<sup>s</sup> P. S. T.

Total eclipse,  $\left\{ \begin{array}{l} 9^h \ 6^m \ 50^s \\ 10^h \ 47^m \ 20^s \end{array} \right.$

Contact with shadow, 11<sup>h</sup> 55<sup>m</sup> 6<sup>s</sup>

These phenomena appear to have been observed in general about half a minute later than the ephemeris times.

An occultation of a ninth magnitude star was observed with the four-inch finder of the thirty-six-inch telescope at the east